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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/035,846 | 12/24/2001 | Chang-Gang Zhang | 13166RRUS01U | 4165 |

7590 04/20/2007
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| EXAMINER |
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MURPHY, RHONDA L

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| ART UNIT | PAPER NUMBER |
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2616

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 04/20/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/035,846

Applicant(s)

ZHANG ET AL.

Examiner

Rhonda Murphy

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4, 5, 8, 10-12, 16, 17 and 20-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4, 5, 8, 10-12, 16, 17 and 20-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This communication is responsive to the amendment filed on 1/29/07. Accordingly, claims 4,5,8,10,11,12,16,17,20,21 and 22 are currently pending in this application.

Response to Arguments

1. Applicant's arguments filed 1/29/07 have been fully considered but they are not persuasive. Applicant argues the Reed reference does not reduce the number of cell sites or sectors, but instead replaces them with less resource burdened sites or sectors. However, Examiner respectfully disagrees. Applicants claim language recites "reducing the number of cell sectors or cell sites to limit the number of soft handoff links that can be employed for hand-off". Examiner would like to direct the Applicant to col. 8, lines 19-27 and Figure 1, mobile 34, soft handoff link 38, and base station 22. Reed describes limiting the number of links (38) from the base station (22) to the mobile terminal (34). Once the soft handoff link is removed, the mobile terminal is no longer connected to that particular base station within that cell site (28). Therefore, the number of cell sectors or cell sites (28) associated with that mobile terminal is reduced, as is the number of soft handoff links that can be employed for hand-off.

2. Applicant further disagrees with the motivation for repeating the step of terminating the weakest handoff link. Examiner believes it would have been obvious to one skilled in the art to repeat the step of terminating the weakest soft handoff link, because as the mobile moves through the network, the signal strength of certain links

weaken and the process of terminating weak links are repeated to eliminate those links that are not fully capable of supporting the data transfer.

3. Thus, the Reed and Wakuta references teach all claimed limitations and the rejection has been maintained.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 8, 21 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. In claim 8, lines 12-13; claim 21, lines 13-14; and claim 22, lines 23-24, the limitation "reducing the number of cell sectors or cell sites by one" is vague and indefinite.

7. In claim 21, line 1, the limitation "in the event that the preceding step fails to increase the number of unused Walsh Codes", it is unclear how the preceding step of dropping a link to thereby increase unused Walsh Codes, would "fail to increase the number of unused Walsh Codes".

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2616

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 4, 5, 8, 10-12 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed et al. (US 6,160,798).

Regarding claim 8, Reed teaches assigning a plurality of Walsh Codes to each of a plurality of serviced mobile terminals, wherein each of a plurality of Walsh Codes servicing a mobile terminal corresponds to respective soft handoff link transmissions (col. 1, lines 19-26 and further described in col. 8, lines 19-23) and each of the plurality of Walsh codes is used by each cell or sector participating in hand-off for the service mobile terminals for covering its soft handoff link transmissions (col. 1, lines 19-39; Fig.1); determining that an insufficient number of unused Walsh Codes are available (col. 1, lines 40-52); and limiting the number of soft handoff links that can be employed for each of the plurality of mobile terminals to thereby limit the number of Walsh Codes being employed by (further described in col. 8, lines 14-36); terminating a weakest soft handoff link for at least some of the plurality of mobile terminals (col. 8, lines 19-27).

Reed fails to explicitly disclose reducing the number of cell sectors or cell sites to limit the number of soft handoff links that can be employed for hand-off. Since Reed discloses limiting the number of links from the base stations to the mobile terminal (col. 8, lines 19-27), it would have been obvious to one skilled in the art to realize the number of cell sectors or sites will be reduced, since the links from the base station are no longer connected to the mobile.

Reed fails to explicitly disclose repeating the termination of the weakest soft handoff link for at least some of the plurality of serviced mobile terminals. However, it would have been obvious to one skilled in the art to repeat the step of terminating the weakest soft handoff link, because as the mobile moves through the network, the signal strength of certain links weaken and the process of terminating weak links are repeated to eliminate those links that are not fully capable of supporting the data transfer.

Regarding claim 10, Reed teaches the method wherein the respective weakest soft handoff link is determined based upon the strength of corresponding pilot signals, as measured and reported by the mobile terminal (col. 3, lines 25-35).

Regarding claim 11, Reed teaches a method wherein a plurality of reports of pilot signal strengths are used in conjunction with mathematical operations to determine the weakest soft handoff link (col. 9, lines 31-39). Reed fails to explicitly disclose an averaging operation.

An averaging operation is a type of mathematical operation. Since Reed teaches mathematical operations to determine the weakest forward link, it would obvious to include an averaging operation as a type of mathematical operation, in order to determine the weakest soft handoff link by obtaining an average of pilot signal strengths.

Regarding claim 12, Reed teaches terminating a weakest soft handoff link for each mobile terminal being serviced by two forward links (col. 3, lines 47-55).

Reed fails to explicitly disclose terminating a weakest soft handoff link for each mobile terminal being serviced by five or six forward links.

However, terminating multiple forward links are known in the art and therefore, would be obvious to include multiple forward link handoffs for terminating multiple weak forwarding links, so as to eliminate the weakest links in order to increase spreading code availability.

Regarding claim 21, Reed teaches determining when a given communications cell sector or cell site has a certain number of unused Walsh Codes (col. 1, lines 40-52), (col. 1, lines 49-52); when the given communications cell sector or cell site has a certain number of unused Walsh Codes, for each mobile unit in communication with the given cell sector or cell site having soft handoff links between cell sectors or cell sites, determining the weakest soft handoff link with the given cell sector or cell site (col. 8, lines 14-36) and causing that link to be dropped thereby increasing the unused Walsh Codes at the given cell sector or cell site (col. 8, lines 19-27).

Although Reed fails to explicitly disclose fewer than N unused Walsh codes, where N is a pre-set integer, M or more cell sites, where M is an integer greater than one, S soft handoff links, where S is an integer, Reed does disclose a certain number of unused Walsh codes (col. 1, lines 40-52), base stations 22,24,26 within cell sites 28,30,32, and soft handoff links (Fig. 1, links 38,54,46 and 48; col. 8, lines 29, 38-39, 46-47).

In view of this, it would have been obvious for the Walsh codes, cell sites and soft handoff links to have integers values, since multiple codes, sites and links are described and can be associated with a numerical value for specifying a particular number of codes, sites and links associated with the communication network.

Furthermore, Reed fails to explicitly disclose reducing the number of cell sectors or cell sites M by one. Since Reed discloses limiting the number of links from the base stations to the mobile terminal (col. 8, lines 19-27), it would have been obvious to one skilled in the art to realize the number of cell sectors or sites will be reduced, since the links from the base station are no longer connected to the mobile.

In addition, Reed fails to explicitly disclose in the event that the preceding step fails to increase the number of unused Walsh Codes and the number of cell sectors or cell sites M, where M is greater than a predetermined lesser number of soft handoff links S, where S is an integer, reducing the number of cell sectors or cell sites M by one and repeat the steps of determining the weakest soft handoff link and causing that link to be dropped.

However, it would have been obvious to one skilled in the art to repeat the step of terminating the weakest soft handoff link when the previous step fails to increase the number of unused Walsh codes, because as the mobile moves through the network, the signal strength of certain links weaken and the process of terminating weak links are repeated to eliminate those links that are not fully capable of supporting the data transfer.

Regarding claim 4, Reed teaches the method of claim 21, wherein the weakest soft handoff link is determined based upon the strength of corresponding pilot signals, as measured and reported by each mobile unit in communication with the given cell sector or cell site having soft handoff links between M or more cell sectors or cell sites (col. 3, lines 25-35; see Fig. 1).

Regarding claim 5, Reed teaches the method of claim 4, wherein a plurality of reports of pilot signal strengths are used in conjunction with mathematical operations to determine the weakest soft handoff link (col. 9, lines 31-39). Reed fails to explicitly disclose an averaging operation.

An averaging operation is a type of mathematical operation. Since Reed teaches mathematical operations to determine the weakest soft handoff link, it would be obvious to include an averaging operation as a type of mathematical operation, in order to conclude the weakest soft handoff link by obtaining an average of pilot signal strengths.

3. Claims 16, 17 and 20, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed et al. (US 6,160,798) in view of Wakuta et al. (US 2005/0221828).

Regarding claim 22, Reed teaches the same limitations described above in the rejection of claim 21. Reed further teaches a base station controller that supports Code Division Multiple Access (CDMA) operations, the base station controller (Fig. 1, 42) comprising: at least one base station interface that interfaces the base station controller to a plurality of base stations (the interfaces must exist to connect communication lines 44 to multiple base stations); and at least one digital processor (controller 46) coupled to the base station interface; and a plurality of software instructions that are executed by the processor, the plurality of software instructions comprising: software instructions (col. 3, lines 22-23) that, upon execution by the processor, cause the base station controller to perform the functions described above in the rejection of claim 21.

Reed fails to explicitly disclose a Mobile Switching Center (MSC). It is known in the art that MSCs are connected to base station controllers, which inherently include an interface for connecting the two units.

However, Wakuta discloses an MSC interface that interfaces the base station controller to a MSC (Fig. 7, interface must exist in order to communicate with the base station controller).

In view of this, it would have been obvious to one skilled in the art to include an MSC interface, so as to provide connection means to the base station.

Regarding claim 16, Reed teaches the base station controller of claim 22, wherein the base station controller determines the weakest soft handoff link based upon the strength of corresponding pilot signals, as measured and reported by the mobile unit in communication with the given cell sector or cell site having soft handoff links between M or more cell sectors or cell sites (col. 3, lines 56-64).

Regarding claim 17, Reed teaches the base station controller of claim 16, wherein a plurality of reports of pilot signal strengths are used in conjunction with mathematical operations to determine the weakest soft handoff link (col. 9, lines 31-39). Reed fails to explicitly disclose an averaging operation.

An averaging operation is a type of mathematical operation. Since Reed teaches mathematical operations to determine the weakest forward link, it would obvious to include an averaging operation as a type of mathematical operation, in order conclude the weakest forward link by obtaining an average of pilot signal strengths.

Art Unit: 2616

Regarding claim 20, Reed teaches the base station controller of claim 22, wherein the base station controller operates consistent with IS-95A, IS-95B, 1xRTT, or 1xEV-DO operating standards (col. 1, lines 28-31).

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rhonda Murphy whose telephone number is (571) 272-3185. The examiner can normally be reached on Monday - Friday 9:00 - 5:30pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2616

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Rhonda Murphy
Examiner
Art Unit 2616

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